

1 Shopping cart or transport container

2

3 The invention relates to a shopping cart or transport
4 container in its broadest sense.

5

6 A large proportion of the shopping carts or transport
7 containers in use have a surface made of zinc-plated,
8 chrome-plated or painted metal. The so-called basket,
9 that is to say the region in which the transported
10 items, for example the purchased goods, are placed,
11 consists of an interwoven structure of round metal
12 bars. There are a small number of plastic shopping
13 carts in existence. To achieve a sufficient degree of
14 stability for the basket, the basket consists of
15 plastic bars which are more solid than the metal bars.

16

17 As a result of use, shopping trolleys or transport
18 containers are subject to soiling, making cleaning
19 necessary at certain intervals.

20

21 For reasons of food hygiene regulations, shopping carts
22 or transport containers in which foods is transported
23 must be cleaned only with water without the addition of
24 solvents. To increase the cleaning action of the water,
25 the water is sprayed at a high temperature onto the
26 regions to be cleaned using so-called steam jets.
27 Depending on the degree and nature of the soiling,
28 mechanical assistance in the form of brushing is
29 additionally required.

30

31 On the one hand, this cleaning method requires a high
32 degree of effort; on the other hand, this method
33 achieves the desired result only when the cleaning is
34 performed on shopping carts or transport containers
35 made of metal. In the case of shopping carts or
36 transport containers made of plastic, the conditions
37 for cleaning are even more difficult since there are
38 crevices at the junction points between the individual

1 plastic bars and contaminating matter becomes deposited
2 therein. The fact that the bars in plastic shopping
3 carts are more solid than the metal bars results in
4 long crevices. When cleaning plastic shopping carts or
5 transport containers, these long crevices at the
6 junction points between the bars again require special
7 cleaning, which further increases the effort involved.

8
9 It is an object of the invention to provide a shopping
10 cart or transport container made of metal or plastic in
11 which the cleaning effort is reduced and/or the surface
12 does not offer an environment in which bacteria and/or
13 fungi and their spores can take hold and/or multiply.

14
15 This object is achieved by the characterizing features
16 of claim 1.

17
18 The underlying consideration was that a hydrophobic
19 surface of the shopping cart or transport container,
20 this surface additionally having a so-called
21 nanostructure, in most cases does not give the
22 contaminating matter sufficient purchase to adhere
23 firmly. Such a surface then has so-called
24 superhydrophobic properties.

25
26 Contaminating matter which nevertheless remains
27 clinging to the dry surface can then be removed easily
28 and virtually without trace with normal running water.
29 The water itself here drips off the surface virtually
30 without trace and in the process takes up the
31 contaminating matter adhering to the surface and
32 transports this matter away.

33
34 Such a surface is described in WO 96/04123 and can be
35 used in a novel and inventive way to reduce the
36 cleaning effort required for shopping carts.

37

1 With regard to shopping carts having a basket made of
2 plastic, an economically expedient use in the food
3 sector is possible for the first time, since it is only
4 with the present invention that the specific problem of
5 firmly adhering dirt in the corners of the bar junction
6 points is eliminated.

7

8 If the shopping cart is exposed to rain, the cleaning
9 is performed by the rainwater itself.

10

11 A further consideration was that pathogens such as
12 fungi or bacteria which adhere to a shopping cart can
13 be transferred from there to food situated within such
14 a shopping cart.

15

16 For fungi to be able to develop, the fungal spores must
17 first germinate. The fungal spores require moisture for
18 this germination. Here, as a result of its additional
19 nanostructure, the hydrophobic or superhydrophobic
20 surface in a shopping cart according to the invention
21 has a twofold action against pathogens. The pathogens
22 or fungal spores are washed off during each cleaning
23 operation or by rainwater, and since all the water runs
24 off from the surface of the shopping cart without a
25 trace, the moist environment necessary for germination
26 or survival is not available to pathogens.

27

28 At the same time, fungal spores which have adhered to
29 the dry surface are taken along by the water running
30 off and removed from the surface.

31

32 The use of a surface having ion-releasing properties
33 makes it possible to kill any bacteria.

34

35 The use according to the invention of the combined
36 hydrophobic or superhydrophobic and/or ion-releasing
37 surface results in a shopping cart having the

1 additional property of not providing an environment in
2 which pathogens can survive.

3

4 The invention will be explained below with reference to
5 two drawings.

6

7 Figure 1 shows a customary shopping cart made of steel,
8 and

9 figure 2 shows a shopping cart made of plastic.

10

11 In the case of both shopping carts 1, 2, the surface is
12 designed to be hydrophobic or superhydrophobic and/or
13 ion-releasing.

14

15 The hydrophobic or superhydrophobic and/or ion-
16 releasing property of the surface can be achieved in
17 the case of the steel shopping cart by coating with an
18 appropriate material.

19 This coating may be applied to the shopping cart either
20 during the primary production process or at a later
21 time, for example during an overhaul.

22

23 It is preferable for only the basket 3, which consists
24 of a multitude of metal bars 4, to be equipped with a
25 hydrophobic or superhydrophobic and/or ion-releasing
26 surface. The remaining regions of the shopping cart
27 which cannot come into contact with the food remain
28 without a specially treated surface.

29

30 In the case of the plastic shopping cart 2, the
31 hydrophobic or superhydrophobic and/or ion-releasing
32 surface may have already been produced by appropriate
33 production methods.

34

35 In the case of conventionally produced plastic shopping
36 carts, that is to say ones produced without a
37 hydrophobic or superhydrophobic and/or ion-releasing
38 surface, a subsequent coating is possible.

1
2 The basket 5 of the shopping cart 2 consists of
3 comparatively solid bars 6.
4 At the junction points of a number of bars 6
5 (exemplified by 7 in the example shown), there are
6 angled regions at the transitions to the bars, in which
7 regions contaminating matter stubbornly settles in the
8 case of normal surfaces. It is precisely in these
9 regions that the hydrophobic or superhydrophobic and/or
10 ion-releasing surface according to the invention is
11 particularly advantageous.

12
13 The invention can be applied to any type of transport
14 container in which the easy cleaning of contaminating
15 matter provides an advantage. Examples of such
16 transport containers are cases, baskets or folding
17 boxes used particularly for food shopping or storage.

18
19 The advantages of easy cleaning can equally also be
20 applied to all other sectors in which transport
21 containers are liable to soiling and are then intended
22 to be easy to clean again.

23